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**Sublethal Responses of Delta Smelt to Contaminants Under Different Flow Conditions.** M.E. Stillway, University of California, Davis, CA, B.G. Hammock, University of California, Davis, CA, S. Acuña, Metropolitan Water District of Southern California, Sacramento, CA, A.R. McCormick, University of California, Davis, CA, T.C Hung, University of California, Davis, CA, A. Schultz, U.S. Geological Survey, Flagstaff, AZ, T. Young, University of California, Davis, S.J. Teh, University of California, Davis, CA. We examined the association between contaminants and Delta Smelt health across contrasting water year types and flow-related management actions. Our study spanned the fall season of three years: one dry year (2018), bracketed by two wet years (2017 and 2019). Additionally, our study coincided with two management actions: Fall X2 to maintain elevated freshwater flow and the North Delta Food Web Subsidy to increase zooplankton densities. We collected field water from six sites in the SFE, exposed Delta Smelt to the field water for 96 hours, assessed survival and the histopathological condition of the gill and liver, and analyzed the field water for contaminant concentrations. Fipronil metabolites and chlorpyrifos were the main contaminants detected in 2017 and 2018, and a variety of contaminants associated with the rice harvest were detected in 2019. We observed negative effects in the liver of Delta Smelt exposed to the Toe Drain and Cache Slough during the 2019 North Delta Food Subsidy pulse flow, which coincided with elevated detections and concentrations of organic pesticides. Other noteworthy effects, likely occurring in response to contaminant mixtures, included increased gill lesions in Delta Smelt exposed to the Toe Drain, Cache Slough, and Decker Island in 2017 and severe gill lesions in fish exposed to Decker Island in 2019. The drier year of 2018 had the fewest organic chemical detections and lesions were generally mild or absent, supporting the hypothesis that elevated contaminants during wetter years may detrimentally affect Delta Smelt condition.